

## ABSTRACT

It is easy to increase output with a wide stripe laser, but the lateral mode is a multimode, and the coupling efficiency is low with a single-mode fiber or a single-mode waveguide, creating  
5 problems in terms of increasing output. To solve these problems, the light emitted from a wide stripe semiconductor laser is passed through a mode converter and a wavelength selecting filter, then fed back to the active layer of the semiconductor laser, which fixes the oscillation mode of the semiconductor laser to single mode.